

ERRATA

A PREDESIGN REPORT ON MARINE WASTE DISPOSAL

VOLUME II DATA SUPPLEMENT

CITY AND COUNTY OF SAN FRANCISCO

SEPTEMBER 1971

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BROWN AND CALDWELL
CONSULTING ENGINEERS
SAN FRANCISCO, CALIFORNIA

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The following changes are made to data sheets of Section II,
Ecological Investigations, Predesign Report on Marine Waste Disposal,
Volume II Data Supplement.

BIOASSAY DATA

TYPE In-Situ Toxicity OBSERVER J. Hawke DURATION 4-8 days

SUBJECT _____ WATER PIER 35
 ORGANISM THREESPINE STICKLEBACK EFFLUENT _____ SOURCE PIER 39

GASTEROSTEUS ACULEATUS

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)									
			0	1	2	3	4	5	6	7	8	
<u>1</u>	Horseshoe Bay Pier 35 Pier 39		10 5 5	10 5 5	10 5 5	10 5 a	10 5	10 5	10 5			4/14/70 to 4/20/70
<u>2</u>	Horseshoe Bay Pier 35 ^b Pier 39 ^c		12 12 12	12 9 6	12 6 4	12	12 3 2					4/23/70 to 4/27/70
<u>3</u>	Horseshoe Bay Pier 35 ^d Pier 39		15 15 15	15 7 9	15 1 2		15 0 1					4/27/70 to 5/1/70
<u>4A</u>	Horseshoe Bay Pier 35 Pier 39		15 15 15	15 15 14	15 15 11	15 13 5	15 13 5	13 5	13 5			5/12/70 to 5/16/70
<u>4B</u>	Pier 35 Pier 39		5 5	5 5	5 4	5 4	5 4	5 4				5/12/70 to 5/16/70
<u>5</u>	Horseshoe Bay Pier 35 Pier 39		15 15 15	15 13 5	15 10 5	15 7 4	15 4 4				15 2 4	5/18/70 to 5/26/70
<u>6</u>	Pier 7 Fish adjusted to Pier 7		5 5 5	5 5 4	5 5 4	5 5 4			a 5 4			5/27/70 to 6/1/70
<u>7</u>	Horseshoe Bay ^e Pier 7		25 25	22 23	21 20	21 17	21 17					6/2/70 to 6/5/70
^a cage stolen												Data used in preparation of Table 5-9.
^b USS Canberra at pier 4/24 to 4/26												
^c Maria D'Armaco at pier 4/25 to 4/27												
^d USS Mariposa at pier 4/27. Dumped bilges and was scraped free of barnacles.												
^e Army reserve LST's and dredges operating near Fort Baker control pier 6/3.												



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BIOASSAY DATA

TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

SUBJECT
ORGANISM SHINER PERCH EFFLUENT S.F. COMPOSITE WATER SOURCE FORT BAKER

CYMATOGASTER AGGREGATA

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>1</u> 7/25/70	control	5 liter	10	-	9	-	8				
	1:50		10	-	8	-	6				
	1:10		10	-	9	-	9				
	1:5		10	-	10	-	10				
<u>2</u> 7/25/70	control	5 liter	20	-	18	-	14				
	1:20		20	-	19	-	14				s - Salinity adjusted
	1:10		20	-	18	-	10				
	1:5		20	-	16	-	11				p - Salinity not adjusted
<u>3</u> 7/30/70	control	5 liter	15	-	15	-	12				
	1:20		15	-	15	-	14				
	1:10		15	-	14	-	14				
	1:5		15	-	14	-	13				
<u>4</u> 9/7/70	control	5 liter	7	7	7	-	5				
	1:5		7	6	5	-	4				
	1:2s		7	6	4	-	2				
	1:2p		7	6	6	-	3				
<u>5</u> 8/15/70	control	5 liter	10	-	10	-	10				
	1:2s		10	-	10	-	1				
	1:2p		10	-	8	-	1				
	1:1s		10	-	0	-	0				
	1:1p		10	-	0	-	0				

BIOASSAY DATA

 TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

 SUBJECT
 ORGANISM WALLEYE PERCH EFFLUENT S.F. COMPOSITE WATER
 SOURCE FORT BAKER
HYPERPROSOPON ARGENTEUM

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>6</u> 9/10/70	control	5 liter	2	2	2	-	2				
	1:5		2	2	2	-	1				
	1:5		2	1	1	-	0				
	1:5		2	2	2	-	2				
<u>7</u> 7/11/70	control	5 liter	6	-	6	-	6				
	1:100		6	-	6	-	6				
	1:50		6	-	6	-	5				
<u>8</u> 7/26/70	control	5 liter	15	-	15	-	15				
	1:100		15	-	15	-	15				
	1:50		15	-	15	-	15				
<u>9</u> 8/12/70	control	5 liter	6	-	-	-	5				
	1:20		6	-	-	-	5				
	1:10		6	-	-	-	5				
	1:5		6	-	-	-	5				

BIOASSAY DATA

TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

SUBJECT
ORGANISM SAND DAB EFFLUENT S.F. COMPOSITE WATER
SOURCE FORT BAKER

CITHARICHTHYS SORDIDUS

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>10</u> 8/19/70	control	5 liter	6	-	6	-	6				
	1:2s		6	-	6	-	6				
	1/2		6	-	6	-	6				
	1/1s		6	-	6	-	5				
	1/1		6	-	5	-	2				
<u>11</u> 7/19/70	control	5 liter	7	-	7	-	7				
	1/20		7	-	7	-	7				
	1/10		7	-	6 ^a	-	6 ^a				
	1/5		7	-	6 ^a	-	6 ^a				
<u>12</u> 7/19/70	control	5 liter	13	-	13	-	13				
	1/20		13	-	13	-	12				
	1/10		13	-	13	-	10				
	1/5		13	-	13	-	12				
<u>13</u> 7/19/70	control	5 liter	5	5	5	-	5				
	1/1s a		5	5	5	-	5				
	1/1s b		5	5	4	-	4				
	1/1 a		5	5	5	-	5				
	1/1 b		5	5	5	-	5				
^a One fish jumped out of tank.											

s - Salinity adjusted

BIOASSAY DATA

TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

SUBJECT				WATER	
ORGANISM	STICKLEBACK	EFFLUENT	S.F. COMPOSITE	SOURCE	FORT BAKER

GASTEROSTEUS ACULEATUS

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)									
			0	1	2	3	4					
<u>22</u> 8/22/70	control	5 liter	10	10	10		7					
	1s/2 1		10	10	10	-	10					
	1s/2 2		10	10	10	-	10					
	1p/2 3		10	10	10	-	10					
	1p/2 4		10	10	10	-	10					
	1s/1 5		10	10	9	-	9					
	1s/1 6		10	10	10	-	9					
	1/1 7		10	10	10	-	6					
	1/1 8		10	10	10	-	3					
	1s/0 9		10	5	5	-	1					
	1s/0 10		10	3	1	-	0					
	1/0 11		10	8	8	-	7					
1/0 12	10	8	8	-	7							
<u>23</u> 8/25/70	control	5 liter	10	9	8	-	7					
	1/100 1*		10	10	10	-	10					
	1/50 2*		10	10	10	-	9					
	1/20 3*		10	10	10	-	10					
	1/10 4*		10	10	10	-	10					
	1/5 5*		10	9	7	-	3					
	1/2 6*		10	10	10	-	10					
	1/1 7*		10	10	10	-	10					
	1/0 8*		10	10	7	-	7					
* GASTEROSTEUS ACCLIMATED TO FRESH WATER												

BIOASSAY DATA

TYPE STATIC OBSERVER TRITICO DURATION 4 DAY
 SUBJECT HERMIT CRAB EFFLUENT S.F. COMPOSITE WATER FORT BAKER
 ORGANISM PAGURUS SAMUELIS SOURCE

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>24</u> 7/13/70	control	5 liter	7	-	7	-	7				
	1/100		7	-	7	-	7				
	1/50		7	-	7	-	7				
<u>25</u> 7/13/70	control	5 liter	7	-	7	-	7				
	1/100		7	-	7	-	7				
	1/50		7	-	7	-	7				
<u>26</u> 7/13/70	control	5 liter	7	-	7	-	6				
	1/100		7	-	7	-	7				
	1/50		7	-	7	-	6				
<u>27</u> 8/13/70	control	5 liter	4	4	4	4	4				
	1/20		4	4	4	4	4				
	1/10		4	4	4	4	3				
	1/5		4	4	4	4	4				

BIOASSAY DATA

TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

SUBJECT
ORGANISM SHORE CRAB EFFLUENT S.F. COMPOSITE WATER SOURCE FORT BAKER

HEMIGRAPUS OREGONENSIS

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>29</u> 7/12/70	control	5 liter	30	0	30	-	25 ^b				
	1/100		30	-	29 ^a	-	27 ^c				
	1/50		30	-	30	-	28 ^b				
<u>30</u> 7/19/70	control	5 liter	30	-	30	-	30				
	1/100		30	-	28	-	28				
	1/50		30	-	29	-	29				
<u>31</u> 7/19/70	control	5 liter	30	-	28 ^b	-	25 ^d				
	1/100		30	-	26 ^b	-	22 ^d				
	1/50		30	-	29 ^b	-	27 ^b				
<u>32</u> 7/26/70	control	30 liter	30	-	29	-	28				
	1/20		30	-	30	-	29				
	1/10		30	-	29	-	29				

^aAnimals probably overcrowded. Fighting (possibly lethal) occurred.

^bAnimals escaped - no test mortalities.

^cOne 48-hour mortality. Others escaped.

^dOne animal dead. Others escaped.

BIOASSAY DATA

 TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

 SUBJECT
 ORGANISM SAND CRAB EFFLUENT S.F. COMPOSITE WATER SOURCE FORT BAKER
EMERITA ANALOGA

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
33 8/7/70 1-day larvae	control	10 liter	17	-	-	-	14				
	1/100		17	-	-	-	13				
	1/50		17	-	-	-	10				
	1/20		17	-	-	-	12				
	1/10		17	-	-	-	6				
	1/2s		17	-	-	-	0				
	1/2		17	-	-	-	0				
7/19/70 adults	control	10 liter	16	-	-	-	15 ^a				
	1:100		17	-	-	-	13 ^a				
	1:50		17	-	-	-	12 ^a				
^a Mortality possibly due to predation.											

s - Salinity adjusted

CRAGO SP.

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)									
			0	1	2	3	4					
<u>35</u> 7/27/70	control	5 liter	10	-	10	-	8					s - Salinity adjusted
	1/100		10	-	10	-	8					
	1/50		10	-	10	-	7					
	1/10		10	-	9	-	7					
	1/5		10	-	9	-	7					
	1/2s		10	-	8	-	7					
	1/2		10	-	9	-	9					
	1/1s		10	-	5	-	3					
	1/1		10	-	4	-	3					
	1/0s		10	-	0	-	0					
	1/0		10	-	0	-	0					

CALLIANASSA CALIFORNIENSIS

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)									
			0	1	2	3	4					
<u>37</u> 8/7/70	control	5 liter	6	-	6	-	6					
	1/100		6	-	6	-	5 ^a					
	1/50		6	-	6	-	5 ^a					
^a Only hard parts of dead shrimp found in tank.												

BIOASSAY DATA

TYPE	STATIC	OBSERVER	TRITICO	DURATION	4 DAY
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SUBJECT	TURBAN SNAIL			EFFLUENT	S.F. COMPOSITE	WATER	FORT BAKER
ORGANISM						SOURCE	

TEGULA FUNEBRALIS

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>28</u> 8/16/70	control	5 liter	18	-	18	-	18				
	1/20		18	-	18	-	18				
	1/10		18	-	18	-	18				
	1/5		18	-	18	-	18				
7/19/70	control	20 liter	24	-	-	-	23 ^a				
	1:100		25	-	-	-	24 ^a				
	1:50		25	-	-	-	23 ^a				
^a Some animals escaped. No test mortality.											

BIOASSAY DATA

 TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

 SUBJECT
 ORGANISM BENT-NOSED CLAM EFFLUENT S.F. COMPOSITE WATER SOURCE FORT BAKER
MACOMA NASUTA

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)										
			0	1	2	3	4						
<u>39</u> 8/7/70	control	5 liter	11	-	11	-	11						s - Salinity adjusted
	1/100		11	-	11	-	11						
	1/50		11	-	11	-	11						
	1/20		11	-	11	-	11						
	1/10		11	-	11	-	11						
	1/5		11	-	11	-	10						
	1/2s		11	-	11	-	10						
	1/2		11	-	11	-	11						
	1/1s		11	-	11	-	11						
	1/1		11	-	11	-	9						
	1/0s		11	-	0	-	0						
	1/0		11	-	0	-	0						

BIOASSAY DATA

TYPE STATIC OBSERVER TRITICO DURATION 4 DAY

SUBJECT
ORGANISM RIBBED HORSE MUSSEL EFFLUENT S.F. COMPOSITE WATER SOURCE FORT BAKER

VOLCELLA DEMISSA

EXPERIMENT NUMBER	RATIO OF EFFLUENT: WATER	VOLUME	SURVIVORS AT TIME INDICATED (IN DAYS)								
			0	1	2	3	4				
<u>40</u> 8/7/70	control	10 liter	10	10	10	-	10				
	1/20		10	10	10	-	10				
	1/10		10	10	10	-	10				
	1/5		10	10	10	-	10				
	1s/2		10	10	10	-	10				
	1p/2		10	10	10	-	10				
	1s/1		10	10	10	-	10				
	1p/1		10	10	10	-	10				
	control		10	10	10	-	10				
<u>41</u> 7/26/70	control	10 liter	30	-	30	-	30				
	1:100		30	-	30	-	30				
	1:50		30	-	30	-	30				

s - Salinity adjusted
p - Salinity not adjusted

